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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/743,146

12/23/2003

Hitoshi Matsuoka

1691-0195P

7474

2292

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12/07/2006

BIRCH STEWART KOLASCH & BIRCH

PO BOX 747

FALLS CHURCH, VA 22040-0747

EXAMINER

DOVE, TRACY MAE

ART UNIT

PAPER NUMBER

1745

DATE MAILED: 12/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/743,146

Applicant(s)

MATSUOKA ET AL.

Examiner

Tracy Dove

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1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) 3 and 4 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 5 and 6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/15/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 3/15/04 has been considered by the examiner.

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1, 2, 5 and 6, drawn to a ion exchange membrane for a fuel cell, classified in class 429, subclass 33.
- II. Claims 3 and 4, drawn to a process for producing the ion exchange membrane, classified in class 521.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product may be made by another materially different process.

Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the

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inventions have acquired a separate status in the art in view of their different classification, restriction for examination purposes as indicated is proper.

Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions require a different field of search (see MPEP § 808.02), restriction for examination purposes as indicated is proper.

During a telephone conversation with Marc Weiner on 11/30/06 a provisional election was made with traverse to prosecute the invention of Group I, claims 1, 2, 5 and 6. Affirmation of this election must be made by applicant in replying to this Office action. Claims 3 and 4 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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Claims 1, 5 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Fenton et al., US 6,465,136.

Fenton teaches a composite membrane structure comprising a composite membrane and at least one protective layer disposed adjacent to the composite membrane. The composite membrane is a porous polymeric matrix (porous film) and an ionically conductive solid, noble metal or combination thereof dispersed within the matrix, and preferably, a binder. The binder is an ion exchange polymer. The protective layer comprises binder and ionically conductive solid, hygroscopic fine powder or a combination thereof (abstract). The porous polymeric matrix possesses high porosity and extremely fine pore size. Preferably the matrix has pores possessing a maximum dimension in the range from about 0.025 μm to about 1 μm . (4:66-5:13). The ionically conductive solid and binder are impregnated into the porous polymeric matrix in order to render the interior volume of the membrane occlusive (33-39). The binder is preferably present in the composite membrane and is any chemically and electrochemically stable ion exchange resin or other polymer with high ionic conductivity (6:19-29). The protective layer comprises a binder and hygroscopic fine powder. The fine powders may silica or titania and have an average particle size less than about 10 μm (6:61-67). The binder employed in the protective layer may be the same as that employed in the composite membrane (6:40-60).

Thus the claims are anticipated.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fenton et al., US 6,465,136.

Fenton teaches a composite membrane structure comprising a composite membrane and at least one protective layer disposed adjacent to the composite membrane. The composite membrane is a porous polymeric matrix (porous film) and an ionically conductive solid, noble metal or combination thereof dispersed within the matrix, and preferably, a binder. The binder is an ion exchange polymer. The protective layer comprises binder and ionically conductive solid, hygroscopic fine powder or a combination thereof (abstract). The porous polymeric matrix possesses high porosity and extremely fine pore size. Preferably the matrix has pores possessing a maximum dimension in the range from about 0.025 μm to about 1 μm . (4:66-5:13). The ionically conductive solid and binder are impregnated into the porous polymeric matrix in order to render the interior volume of the membrane occlusive (33-39). The binder is preferably present in the composite membrane and is any chemically and electrochemically stable ion exchange resin or other polymer with high ionic conductivity (6:19-29). The protective layer comprises a binder and hygroscopic fine powder. The fine powders may silica or titania and have an average particle size less than about 10 μm (6:61-67). The binder employed in the protective layer may be the same as that employed in the composite membrane (6:40-60).

Fenton does not explicitly teach fine powders having an aspect ratio of 50 to 2000.

However, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made because the courts have held that where the only difference between the prior art and the claimed invention was a recitation of relative dimensions

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(particle size or aspect ratio) of the claimed device (composite membrane) and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. See MPEP 2144.04.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tracy Dove whose telephone number is 571-272-1285. The examiner can normally be reached on Monday-Thursday (9:00-7:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

November 30, 2006



**TRACY DOVE
PRIMARY EXAMINER**